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This Issue

- Emergency Field Investigations
- Foreign Animal Disease Update
- Wildlife Surveillance on Antigua
- Chinese Swine and Swine Semen Imported
- Update on Rabbit Disease in Mexico
- Secretary's Advisory Committee
- Data Bank
- Subject Index

Emergency Field Investigations

United States Department of Agriculture (USDA), Animal and Plant Health Inspection Services (APHIS), Veterinary Services (VS) and State-employed veterinarians conducted a total of 71 investigations of suspected foreign animal diseases during the period July 1 through September 30, 1989. Of the total, 34 were suspected vesicular conditions, 15 were suspected exotic Newcastle disease, 2 were suspected avian influenza and other poultry diseases, 2 were suspected hog cholera or African swine fever, 2 were suspected mucosal diseases, 9 were suspected encephalitides, and 7 were suspected exotic ectoparasite and miscellaneous conditions.

A total of 217 investigations of suspected exotic conditions was reported for FY 1989, as follows: 114 vesicular conditions, 43 exotic Newcastle disease, 4 avian influenza and other poultry diseases, 3 mucosal conditions, 7 swine septicemias, 12 encephalitides, and 34 suspected screwworm myiasis and other undiagnosed conditions.

No exotic diseases were found in domestic livestock or poultry during Fiscal Year 1989. Exotic ticks were found in Texas and Ohio. All of the affected premises and livestock have been treated with pesticides, and remain under periodic surveillance (See Update on Exotic Ticks).

Screwworms in Puerto Rico

Screwworm (*Cochliomyia hominivorax*) larvae were found September 7, 1989, in a horse that had returned with two other horses to Puerto Rico on September 5, after competing in a jumping event in Venezuela. At arrival in Puerto Rico, the horses were examined by the Port veterinarian, treated prophylactically with acetic acid and hoof cleansing solution, and trucked approximately 20 miles to an approved quarantine facility, where they were routinely treated with an acaricide. Bedding from the air cargo compartment and truck in which the horses were transported was removed and bagged for deep burial or incineration. An approved acaricide was applied to the air cargo compartment, truck, and eight locations where the truck had stopped after the horses had been placed in it.

Emergency screwworm eradication operations were begun on September 11, 1989, by a team of Commonwealth and APHIS employees in Puerto Rico. A national press release followed, as well as flyers and ectoparasite reporting forms in Spanish which

were distributed to animal owners. On September 13, 1989, a news conference was held with good press coverage. Approximately 1.2 million sterile screwworm pupae were shipped to Puerto Rico from Mexico. After the sterile flies emerged, they were dispersed in an area around the airport, the quarantine station, and where the truck had traveled after offloading the imported horse. Plans were made to continue to disperse sterile flies twice each week over a 6-week period and to increase communications with animal owners through Commonwealth and APHIS swine health inspection personnel. Informational flyers, fly collection containers, and other materials were to be distributed.

Dispersal of sterile screwworm flies was temporarily interrupted by Hurricane Hugo during the week of September 18, 1989.

Update on Exotic Ticks

Retrospective investigation of ostrich importations has been completed by APHIS veterinarians following the May 1989 discovery of exotic ticks on African ostriches, imported during April through a privately owned and operated APHIS-approved quarantine facility in Illinois (see Foreign Animal Disease Report 17-3).

The following report details the ongoing investigation and treatment to assure that no exotic ticks remain in the United States.

On January 25, 1989, 50 juvenile ostriches were imported from Tanzania, Africa, to a privately owned Quarantine Station, in Schaumburg, Illinois. Five chicks did not survive the 30-day quarantine. The remaining 45 chicks were released to premises in Indianapolis, Indiana (1 ostrich); Kapaa, Hawaii (2 ostriches); and Ocala, Florida (42 ostriches). No ticks have been found on these ostriches.

On April 2, 1989, 44 adult ostriches were imported from Tanzania, Africa, to a privately owned, USDA-approved quarantine station in Mundelein, Illinois (Editor's note: A report in the Fall 1989 issue of the FAD Report (17-3:5) erroneously indicated that these ostriches were from Zimbabwe). On May 2, 1989, 25 of these ostriches were released from the 30-day quarantine period. Then, on May 18, 1989, a veterinarian at Andrews, Texas, collected 3 ticks from 1 of 4 adult ostriches that had been part of the group of 25. The ticks were first submitted to the Texas A&M University, Department of Entomology, College Station, Texas, and later to the Smithsonian Institution, Washington, D.C., where they were identified as *Amblyomma gemma* and *Hyalomma* species. *A. gemma* is a known vector of heartwater disease. *Hyalomma* have been experimentally shown to be capable of transmitting East Coast fever. VS Emergency Programs immediately developed and distributed instructions for inspecting and treating ostriches, other animals, premises, and vehicles, and for detecting and eliminating possible exotic ticks. Subsequently, exotic ticks were identified and eliminated at Andrews, Quinland, Dennison, and La Mesa, Texas, and Graysonville, Ohio. The last exotic tick that was found through continuing, periodic inspections was collected June 7, 1989, at Dennison, Texas. Carbon dioxide tick traps, cloth drags, and the examination of wildlife on five premises associated with imported adult ostriches have been used in the surveillance program. These activities were to be repeated and expanded within the next 30 days. Sentinel animals were also being used in attempts to find any remaining exotic ticks on premises which received adult ostriches from the import station in Illinois.

Approximately 780 ostriches were imported and released between October 1, 1988, and May 24, 1989, when exotic ticks were identified in Texas. Of these, about 350 were imported through privately owned facilities and approximately 430 through the

A complete assessment of the economic threat of the incursion of exotic ticks into the United States has not been completed. If these potential vectors of heartwater and East Coast fever should enter and become established in the United States, they would become major threats to the livestock industry. This is especially true for the southern States where tropical ticks could survive the moderate winter. The potential economic burden could be much greater than the losses sustained in the 1800's and early 1900's by the Texas fever tick, *Boophilus annulatus*., and the Texas fever agent, *Babesia bigemina*.

Ectoparasites on Imported Rhinoceroses

On July 16, 1989, 10 black rhinoceroses arrived at Dallas, Texas, from South Africa via Frankfurt, Federal Republic of Germany. They were inspected for ticks upon arrival and were sprayed with an approved acaricide. Twenty male ticks were collected and submitted to USDA's National Veterinary Services Laboratories (NVSL), Ames, Iowa, where they were identified as *Dermacentor rhinocerinus*, *Amblyomma sparsum*, and *Hyalomma truncatum*. Only four of the ticks were alive at the time of collection.

On August 29, 1989, the rhinos were again treated for ectoparasites. Subsequently, one rhino became icteric, depressed, anorexic, and reluctant to move. The attending veterinarian sedated the rhino and collected serum, whole blood, and blood smears. Serum and whole blood were sent to NVSL, and the blood smears were submitted to the University of Missouri's College of Veterinary Medicine.

On September 1, 1989, the USDA Area Veterinarian in Charge for Texas reported that NVSL found the serums positive for *Babesia bigemina*, 4 plus at a dilution of 1:5. Possible theileria organisms were microscopically observed at the Missouri laboratory. Because *Theileria parva* and *T. lawrenci* are causative agents of East Coast fever, attempts are being made to obtain the original specimen for further study. NVSL sent initial specimens to the U.S. Department of Agriculture's foreign Animal Disease Diagnostic Laboratory (FADDL), Plum Island, New York. Plans were made to collect additional specimens on or about September 17, 1989.

Avian Influenza Antibodies in Virginia Chickens

On June 1, 1989, a Harrisonburg, Virginia, broiler-breeder producer submitted six live chickens to the nearby Virginia Veterinary Diagnostic Laboratory. There had been no change in egg production, feed, or water consumption, and no significant changes were found upon post-mortem examination. Mortality rate in the flock appeared to be near normal. Then, on June 7, serums from four of the six chickens reacted positively to avian influenza (AI) antigen in the agar gel precipitin test. Serums were immediately sent to NVSL. On June 19, NVSL reported insufficient serum for a hemagglutinin typing test. Neuraminidase type 3 was identified and more specimens were requested. On June 30, 1989, the Harrisonburg laboratory found AI antibodies in 9 of 20 serums that had been collected from the same flock on June 27. The serums were sent to NVSL, where H₇N₃ AI antibodies were confirmed on July 14, 1989.

On July 21, 1989, the State of Virginia quarantined the affected premises. On July 25, 1989, swab specimens and additional blood samples were collected. On July 27, 1989, three epidemiologists arrived in Harrisonburg to participate in epidemiological investigations. The owner of the "index flock" had earlier traced all movements of eggs, equipment, trucks, and other possible vectors. Serum samples were obtained from associated flocks and tested to determine the possible presence of AI antibodies. The source flock was also tested and found to be free of AI antibodies. All flocks within a

2-mile radius of the index premises were tested. The local poultry industry and flock owner planned to expand testing to a 4-mile radius during the week of July 31, 1989.

On July 31, 1989, another flock owned by the same company in the Harrisonburg, Virginia, area which received chickens from the index flock was shown to have AI antibodies. The positive flock was near the index case and consisted of 45-week-old broiler-breeder laying hens. The index flock was approximately 44 weeks of age. The chickens had arrived from the poultry supplier at about 22 weeks of age. Serums had been collected from a representative number of these chickens at 28 weeks of age and frozen. Later tests disclosed AI antibodies at about the same frequency as with the more recently collected samples, suggesting exposure to H₅N₃ antigens in mid-April 1989.

On Friday, July 28, 1989, serologically negative spent hens were added to the index flock. These remained in the flock for approximately a week. Tracheal and cloacal swabs were collected on the last day for laboratory testing for possible evidence of AI. The owner depopulated both flocks with AI antibodies during the week of August 6, 1989.

AI virus was not found in any of the tested flocks and mortality and morbidity rates in the flocks remained normal.

Avian Influenza Antibodies in Florida Chickens

On August 23, 1989, swab specimens and nine serums were collected from a live poultry dealer's chickens in Hialeah, Florida, and submitted to NVSL, where the serums were shown to contain H₅N₂ AI antibodies. No virus was found, and no clinical signs of disease were reported in the chickens. The premises was depopulated, cleaned, and disinfected. However, AI H₅N₂ virus was isolated from chickens that were placed on the premises as sentinels. Further studies are in progress in an effort to trace the isolated strain to a possible source outside of the affected premises.

Vesicular Stomatitis on Ossabaw Island

On June 15, 1989, the Southeastern Cooperative Wildlife Disease Study, Athens, Georgia, reported that a pig on Ossabaw Island, Georgia, had a vesicle on its snout. Specimens were collected and submitted to NVSL, where New Jersey-type vesicular stomatitis virus (VSV-NJ) was isolated. VSV-NJ was found in Ossabaw Island swine in June 1987 and 1988 (see Foreign Animal Disease Report 16-4:1-2, and 15-3:1). VSV-NJ was also isolated from a pool of sand flies, *Luzomyia shannoi*, collected on Ossabaw Island on June 3, 1988. (Dr. M. A. Mixson and Dr. J. L. Williams, USDA, APHIS, Hyattsville, Maryland 20782, (301) 436-8073)

Foreign Animal Disease Update

The Office International des Epizooties (OIE) reported the following diseases during April, May, and June 1989:

In South America, Argentina reported 46 outbreaks of **foot-and-mouth disease (FMD)** types C and O, and Colombia reported 84 outbreaks of FMD types A and O. Outbreaks of type A were reported in Ecuador during February, involving 36 cases in cattle. Paraguay reported type O in four outbreaks involving cattle and swine. Uruguay reported 25 outbreaks of types O and C. Type A was reported in two outbreaks in Venezuela.

In Europe, Italy reported 70 outbreaks of FMD type C and 1 outbreak of type A. The type C outbreaks exposed more than 156,000 cattle and swine. The USSR reported eight outbreaks of type A.

In the Middle East, Bahrain reported outbreaks of FMD type O. Israel reported 6 outbreaks of type O, and Oman reported 18 outbreaks of type O in cattle and goats. Saudi Arabia and Yemen reported outbreaks of type O. Turkey reported 4 outbreaks of type A involving 10 cases with 4,950 animals exposed to the virus, and 49 outbreaks of type O involving 156 cases with over 98,000 cattle and sheep exposed.

In Africa, Benin reported outbreaks of untyped FMD and Cameroon reported outbreaks of FMD type O. Type O was also reported in Kenya and the Sudan. South Africa and Zimbabwe reported type SAT 2.

In Asia, Hong Kong, Kuwait, Nepal, and the Philippines reported outbreaks of FMD type O and Pakistan reported types A, O, and A1.

The Pan-American Health Organization (PAHO) reported two herds of cattle in Bolivia had FMD type C, and four herds in Brazil had type O and one herd had type A.

Colombia reported outbreaks of **vesicular stomatitis** types Indiana (VS-IN) and New Jersey (VS-NJ), involving 116 cases. Ecuador reported outbreaks of untyped VS. Twenty cases of VS-NJ were reported in Mexico and two outbreaks in Panama. PAHO reported outbreaks of VS-NJ in El Salvador, Guatemala, Costa Rica, and Honduras, and outbreaks of VS-IN in El Salvador.

Kenya reported outbreaks of **rinderpest** during January, February, and April. Burkina Faso reported two outbreaks of peste des petits ruminants (PPR: **pest of small ruminants**) in February, and Ghana had outbreaks in January. Oman reported 20 outbreaks of PPR.

Contagious bovine pleuropneumonia (CBPP) was reported in Benin, Burkina Faso, Kenya, and Kuwait.

Lumpy skin disease (LSD) was reported in the Congo, Ghana, Kenya, and Senegal. Zambia reported 51 cases of LSD and Zimbabwe 59.

The only reports of **Rift Valley fever** (RVF) came from Kenya, where outbreaks have occurred from January through April.

Bluetongue (BT) was reported in Botswana, Kenya, Namibia, South Africa, and the United States. Namibia reported 9 outbreaks with 96 cases and South Africa reported 34 outbreaks. The serotypes were not given.

Australia reported isolating BT serotype 23 during February from a sheep in a sentinel flock that is participating in a continuing program to monitor the possible introduction of BT into Australia. The present isolate is no more pathogenic than the previous isolates of this serotype in Australia.

In Africa, Algeria reported 38 outbreaks of **sheep and goat pox** (SGP) with 544 cases, Burkina Faso reported 4 outbreaks, and Kenya reported outbreaks between January and May. Kuwait reported 15 outbreaks with 59 cases and over 3,000 animals exposed. Senegal reported outbreaks in March, Tunisia reported 11 outbreaks from January through April, and Morocco reported 11 outbreaks. In Asia, Oman reported 9 outbreaks of SGP and Pakistan reported over 211,000 animals exposed during 63 outbreaks. Turkey reported 100 outbreaks involving 1,038 cases, with 467,458 sheep and 6,535 goats exposed to the disease.

APHIS has been notified by the U.S. Counselor for Agricultural Affairs, Madrid, Spain, that the results of laboratory tests have confirmed outbreaks of **African horse sickness** (AHS), again in the southern region of Andalucia (See Foreign Animal Disease Reports 16-4:4, 16-4:7-12, 17-1:2-6, and 17-2:3). The first horse affected in the current recurrence died on July 31, 1989, at the site of the 1988 outbreak, the Sotogrande polo club in Cadiz province. Type 4 AHS virus has been confirmed as the cause of death. A total of 497 horses either died or were sacrificed due to AHS. AHS has also been reported in the province of Huelva, some distance from the Sotogrande polo club, and about 25 miles from Portugal.

Isolation, immobilization, and vaccination have been ordered for all equines within a 35-kilometer radius of the Sotogrande polo club, and in 24 townships in Huelva province. The immobilization order and vaccination are being applied to all equines in the Andalucian provinces of Huelva, Sevilla, Cadiz, Malaga, and Cordoba. A total of 10,000 horses had been vaccinated by the time this report was written.

Because a type 4 AHS virus caused an epidemic that killed 162 horses in Andalucia during the fall and early winter of 1988-1989, and an outbreak in central Spain in the fall of 1987, veterinary officials are speculating that a reservoir may now exist in Andalucia or that the disease entered with an infected imported horse. The occurrence of three confirmed outbreaks of AHS within a period of 2 years could result in a declaration that AHS is endemic in Spain, thereby jeopardizing that country's eligibility to host equestrian events of the 1992 Olympic Games.

(Editor's note: On September 28, 1989, the government of Portugal reported African horse sickness in Algarve province, adjacent to the Huelva province of Spain.)

Italy reported 80 cases of **African swine fever** (ASF) in 15 outbreaks. A total of 190 swine died and 268 were destroyed. Portugal reported 104 outbreaks of ASF in which 402 animals died and 27,255 animals were exposed. In Africa, Malawi reported six outbreaks of ASF.

Argentina, Colombia, Ecuador, Uruguay, Paraguay, and Mexico reported outbreaks of **hog cholera** (HC). Mexico reported 24 outbreaks with 909 cases and 6,483 swine exposed, and Colombia reported 4 outbreaks. PAHO also reported three outbreaks of HC in Colombia. Six outbreaks of HC were reported in Austria, and 4 in Belgium, with 5,685 swine exposed. All affected swine were destroyed. West Germany reported 11 outbreaks of HC with 609 cases, and Italy reported outbreaks during April, May, and June. Italy also conducted a serological survey in wild boars from March 24 to May 31, 1989. HC immunofluorescence tests were performed and five animals were found positive. Korea reported 21 outbreaks with 2,370 swine exposed, Hong Kong reported 27 outbreaks, the Philippines reported 2,354 cases, and Taiwan reported 10 outbreaks with 784 cases and over 5,000 swine exposed. Madagascar also reported the occurrence of HC.

Madagascar reported two outbreaks of **Teschen disease** (TD), and the USSR reported four outbreaks.

Twenty four countries reported outbreaks of **Newcastle disease** (ND). The virus was not typed and was presumed to be velogenic viscerotropic. The affected countries were Mexico, Colombia, Ecuador, Italy, Albania, Austria, Yugoslavia, Turkey, Tunisia, South Africa, Botswana, Algeria, Kuwait, Ghana, Zambia, Kenya, Malawi, the Congo,

Egypt, Hong Kong, Korea, Pakistan, the Philippines, and Madagascar. Two outbreaks were reported in Botswana, 21 in Korea with 52,310 birds exposed, 8 outbreaks in Ghana with 3,506 exposed, 6 in Italy with 8,586 cases, 4 in Madagascar involving 1,900 birds, 4 in Malawi, 7,400 cases in Mexico, 11,728 cases in the Philippines in which 4,008 birds died, 34 outbreaks in Turkey with 39,367 cases and over 574,000 exposed birds, 42 outbreaks in Yugoslavia, and 8 outbreaks in Zambia with 235 birds exposed.

Five countries reported outbreaks of **velogenic viscerotropic Newcastle disease** (VVND): Botswana, Ecuador, Pakistan, and South Africa; the USSR reported 2 outbreaks involving 40,600 birds.

Mexico confirmed 10 cases of necrotic hepatitis or **viral hemorrhagic disease** (VHD) of rabbits during August (See Update on Rabbit Disease in Mexico). These occurred in the States of Jalisco, Morelas, and Guerrero. All affected premises have been depopulated. Plans for sentinelization and repopulation in all affected areas will be implemented when additional funds are made available by the Mexican government. Information reported during January, February, and March may include previously unreported data from outbreaks which occurred in previous months. In some instances, diagnosis may have been strictly clinicopathologic without laboratory confirmation.

Screwworm myiasis due to the North American screwworm (*Cochliomyia hominivorax*) has been reported from Libya. Cattle, sheep, goats, camels, a zoo monkey, and humans were affected. A first report in February 1989 emanated from the identification of a sample sent to the British Museum of Natural History. By July, the government of Libya confirmed nine cases of *C. hominivorax* myiasis during the period January 1 to July 21, in the Garabolla- Ein-Zara (Anzara), Tripoli province. Three additional cases were recorded in Gaser Khiar, Libya, about 60 km from Tripoli. (Dr. M. J. Gilsdorf, APHIS, USDA, IS, OS, Hyattsville, Maryland 20782, (301) 436-8892).

Wildlife Surveillance in Antigua

The tropical bont tick (*Amblyomma variegatum*) was introduced into the Caribbean on cattle from Senegal, West Africa, about 1830, and has since spread to 17 Caribbean islands (see Foreign Animal Disease Report 10-1:6-10). *A. variegatum* is a vector of heartwater, a disease of ruminants in Africa, caused by the rickettsia, *Cowdria ruminantium*. Heartwater is present on three islands in the Caribbean: Antigua, Guadeloupe, and Marie Galante. The tropical bont tick and heartwater together pose a serious threat to the livestock of many of the Caribbean islands and also to large areas of North, Central, and South America. Previously unexposed ruminant populations are highly susceptible to heartwater. Introduction of this foreign animal disease into new areas could result in high rates of mortality and the establishment of a cycle of infection involving native wildlife and additional tick vectors.

To determine if *A. variegatum*, and thus heartwater, can be controlled in the Caribbean, a Pilot Eradication Project (PEP) has been funded for Antigua by the U.S. Agency for International Development. Wild animals are important hosts in the life history of *A. variegatum* in Africa and have been implicated as potential hosts in the Caribbean; therefore, a wildlife component has been included within the PEP. The wildlife component is funded through a Cooperative Agreement between the Southeastern Cooperative Wildlife Disease Study (SCWDS) and the Office of International Cooperation and Development, USDA. Its objectives are to: (1) determine if wildlife species on Antigua are hosts for *A. variegatum*, and if so, determine the dynamics of changes in the tick numbers on selected wildlife species relative to the eradication project; (2) determine which wildlife hosts are migratory and therefore could be involved in the dissemination of *A. variegatum*; and (3) observe the relative abundance of wildlife on Antigua and

determine if any episodes of wildlife mortality on the island during the project are related to the pesticide treatments.

Field studies of the wildlife component began on Antigua in September 1988. Surveillance conducted thus far is part of the pretreatment evaluation and will provide baseline data on tick infestations on wildlife and population estimates for selected wildlife species. Semiannual field surveys for ticks and wildlife population studies are to continue during the eradication project.

The monitoring of small mammals and birds on Antigua revealed that island-wide tropical bont tick infestation rates for mongooses and cattle egrets ranged from 5 to 16 percent and 3 to 27 percent, respectively. These data confirm the suitability of wildlife on Antigua as hosts for *A. variegatum*. Only larvae and nymphs were found. Infestations were lower during May-June 1989 than during the September-October 1989 sampling period. The decline of infestation rates probably reflects seasonal dynamics of *A. variegatum* in the region. Mongooses and cattle egrets have been chosen to serve as barometers of wildlife involvement in Antigua as they were the only wildlife species on which substantial *A. variegatum* infestations were found.

Studies are also underway to determine the potential of the cattle egret to serve as a disseminator of *A. variegatum* in the Caribbean. The cattle egret has been suspected as a disseminator of *A. variegatum* because of its association with livestock and pastures, relatively recent colonization of the Caribbean, potential for long distance movement, and role as a host for immature stages of *A. variegatum*. To help evaluate the potential of cattle egrets to disseminate the tick, SCWDS has begun a study of the movement patterns of these birds in the Lesser Antilles. Cattle egrets are being captured, banded with U.S. Fish and Wildlife Service-numbered leg bands, and one wing of each bird is being marked with a brightly colored dye. The birds are released unharmed and reports of sighting of the color-coded birds have been solicited. Cattle egrets captured on Antigua are marked with a blue dye. Birds on Barbuda, Guadeloupe, and Marie Galante will be marked with yellow, red, and black dyes. Work in the French West Indies will be in cooperation with the Institut d'Elevage et de Medecine Veterinaire des Pays Tropicaux, Guadeloupe, France.

Although the marking phase of this project began only recently, a cattle egret marked on Antigua during the May-June 1989 field season was seen June 20 near Goyave on Basse-Terre, Guadeloupe. Antigua and Guadeloupe are separated by over 35 miles of ocean. This single observation could be an indication of regular inter-island movements, or a relatively rare case of movement of a single bird. Additional observation will be needed for evaluation of the movement patterns of cattle egrets in the Lesser Antilles and will be important in the assessment of the potential for cattle egrets to disseminate *A. variegatum*. (Joseph L. Corn and Victor F. Nettles, Southeastern Cooperative Wildlife Disease Study, College of Veterinary Medicine, the University of Georgia, Athens, Georgia 30602, (404) 542-1741)

Chinese Swine and Swine Semen Imported

Chinese swine and swine semen were imported into the United States during July 1989, culminating a series of regulatory actions intended to accommodate a long-standing interest of the USDA's Agricultural Research Service (ARS) in having them for research purposes, while assuring that no foreign disease would be imported.

ARS contracted with Iowa State University, the University of Illinois, and the government of China to import three breeds of swine: Meishan, Fenjian, and Meng, from Suchou and Harbin. The project objective is to conduct research on production and

disease-resistant traits that may benefit the U.S. swine industry. The Chinese swine are known to produce an average of 16 to 20 piglets twice-yearly. Both universities and ARS will conduct research separately and then coordinate their findings. The Chinese breeds will be crossed with U.S. swine to increase litters.

Veterinary Services (VS) first developed and published health requirements to qualify the swine for importation through the Harry S. Truman Animal Import Center (HSTAIC), and then entered into a cooperative agreement with ARS, acting on behalf of all three groups, to carry out the project. Three VS veterinarians travelled to China to supervise the project. A total of 244 swine were isolated in 3 separate, approved facilities in China, while being tested for foot-and-mouth disease (FMD), swine vesicular disease (SVD), hog cholera (HC), Japanese B encephalitis (JE), pseudorabies (PR), brucellosis (BR), and tuberculosis (TB). Upon the completion of a 6-day isolation period and negative test results, 144 animals were selected and flown to HSTAIC to start a 120-day quarantine. Upon arrival, the animals were examined and sprayed for ectoparasites. They were then tested for the diseases already mentioned, tested 21 days later for FMD, and retested 60 days after initial testing by another full series of tests.

While in HSTAIC, the swine were placed in contact with sentinel animals at a ratio of one contact calf and one contact pig to eight imported swine. The sentinel animals had been tested and found free of diseases for which the imported animals had been examined. At the completion of the 60-day test period, heparinized blood was taken from each imported swine and inoculated into sentinel pigs. Approximately 30 days later, serum was collected from these sentinel animals and tested for the same diseases for which the imported swine were tested.

Of the 144 swine that cleared pre-embarkation quarantine in China, 140 were released from HSTAIC. One Meishan boar died due to massive hemorrhaging, two Meishan boars died of pneumonia, and one Meishan gilt was sacrificed because of antibody: low titers for SVD. There were no clinical signs of any exotic or other communicable diseases, and laboratory tests of tissues yielded no SVD virus.

On July 26, after completion of the 120-day quarantine and negative test results, 140 animals were released from HSTAIC and transported to research centers at the University of Illinois, Iowa State University, and USDA's Meat Animal Research Center at Clay Center, Nebraska. These institutions do not plan to release genetic material to other universities for 3 years, and no genetic materials will be released to the public for at least 5 years. This is to prevent the possible introduction of negative generic characteristics into domestic herds.

Simultaneous to the swine importation, swine semen was also imported from China under a project which had been requested several years ago by DeKalb Swine Breeders*. This was the first time swine semen was imported into the United States from a country that is known to have FMD.

Appropriate regulations were developed and published by APHIS regarding health requirements for Chinese swine semen. Boars were selected by the importer, isolated for 60 days, and tested for FMD, SVD, HC, JE, PR, and TB.

*Disclaimer: Trade names are used in this publication solely for the purpose of providing specific information. Mention of a trade name does not constitute a guarantee or warranty of the service by the U.S. Department of Agriculture or an endorsement by the Department over other services not mentioned.

After completion of the isolation period, with negative test results, the boars were flown to Beijing to start a 30-day semen collection period.

Two VS veterinarians travelled to China to test the donor boars and supervise the collection of semen by DeKalb personnel. Both the donor and teaser animals were tested for FMD, BR, SVD, HC, JE, PR, and TB at the beginning and end of the 30-day collection period. They were also tested 21 days after the last collection for all the diseases just mentioned, except TB and JE. In addition to these tests, a total of 5 ml of each ejaculate of semen was collected and submitted to the Foreign Animal Disease Laboratory for pathogen isolation tests for FMD, PR, SVD, HC, JE, and PR. After the project was completed, the semen was taken by the USDA Veterinary Medical Officer to the United States to be stored at the New York Animal Import Center until completion of the tests.

On July 12, 1989, all tests were found negative by the Foreign Animal Disease Laboratory and approximately 1,200 doses of the semen were released to the importer.
(Peggy Burke, Staff Specialist, Import-Export Animals Staff, VS, APHIS, USDA, Hyattsville, Maryland 20782, (301) 436-7476).

Update on Rabbit Disease in Mexico

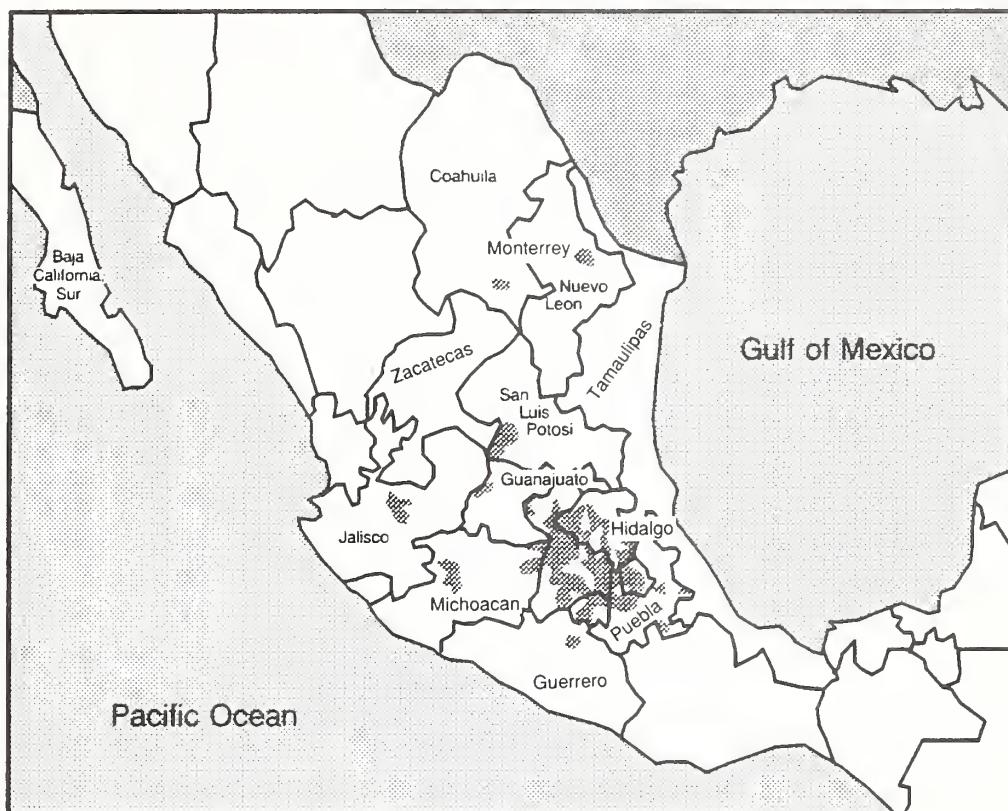
An outbreak of a foreign disease of rabbits in Mexico was reported in the previous three issues of the Foreign Animal Disease Report (17-1:8, 17-2:7, and 17-3:"). The disease has been called viral hemorrhagic disease of rabbits (VHD), necrotic hepatitis of rabbits, and other descriptive names by investigators in the Asian and European countries where it has caused major losses for domestic rabbit producers. VHD was first diagnosed in Mexico in late January 1989, by the Mexico-United States Commission for the Prevention of Foot-and-Mouth Disease and Other Exotic Diseases of Animals (CPA). The disease entered and spread to several locations in Mexico during December 1988.

This article updates the information already given.

Retrospective investigation and epidemiological analysis of the gathered information disclosed the following history. On November 19, 1988, a shipment of 18,900 kg of dressed, frozen rabbit carcasses that had arrived in southern California from the People's Republic of China, November 14, 1988, entered Mexico by truck at Nuevo Laredo, Tamaulipas. Four days later, the carcasses were delivered to the warehouse of a large supermarket firm in Cuautitlan, Mexico. On December 6, an employee of the "El Marfil" farm in Actopan, located 140 km from Cuautitlan, travelled to the Cuautitlan warehouse, came into contact with the carcasses, and returned to Actopan, where he came into contact with live domestic rabbits that were under his care.

On December 11, a rabbit dealer brought a number of rabbits from "El Marfil" and then, December 13, sold some of them to the Rabbit Production Unit of the Cuautitlan School of Advanced Studies (FESC). By December 18, the FESC rabbit colony suffered high death losses. Deliveries, sales, and product distribution during December had been so extensive that, by January 1989, the disease had been transported to many other locations in Mexico. By mid-February, rabbits were dying of VHD in the states of Guanajuato, Hidalgo, Jalisco, Michoacan, Morelos, Puebla, Queretaro, San Luis Potosi, Tlaxcala, and the Federal District (DF).

Viral Hemorrhagic Disease in Rabbits Areas Affected in Mexico



During the first days of February, the CPA director and other Mexican animal health officials established procedures to eradicate VHD and begin an intensive information campaign throughout the country. Immediate consultation with the USDA's VS Emergency Programs, Foreign Animal Disease Diagnostic Laboratory, and International Services disclosed a lack of information on the disease. Then, through consultation with an investigator in Italy, it appeared that the disease in Mexico was identical to an epizootic disease that had been afflicting European, Chinese, and Korean rabbit populations since its first appearance in China in 1984. The outbreak in Mexico was evidently the first reported incident of the disease in the Western Hemisphere. Guatemala, Belize, the United States, and the Office International des Epizooties (OIE) were notified February 6 and 7, 1989, of the presence of VHD in Mexico, by the Mexican Secretariat of Agriculture and Water Resources (SARH).

An animal health emergency was declared February 21, 1989. The Mexican Subsecretary of Livestock placed all members of the National System for Emergencies in Animal Health (SINESA: an emergency task force similar to the U.S. Regional Emergency Animal Disease Eradication Organization (READEO)) on alert to perform regional and zonal investigations for the possible presence of VHD and prepare for mobilization if the need arose. The steps taken followed a strategic plan created only months earlier. Subsequently, the outbreak area was found to be primarily in the

Valley of Mexico. A team of 34 SINESA members were called to organize and carry out specified eradication measures. These measures included an intensified public information campaign, laboratory confirmation of suspected VHD on each affected premises, establishment of quarantines, stopping the movement and sale of rabbits and rabbit byproducts in all affected geographic areas, depopulation of rabbits on contaminated premises, certification of owners for the eventual replacement of confiscated rabbits, cleaning and disinfection of depopulated premises, and follow-up surveillance.

By July 31, 63,966 rabbits had died from VHD in 10 Mexican States and the DF. From May 8 to June 5, over 34,000 rabbits were sacrificed by occipital-vertebral subluxation and either buried with caustic soda or incinerated. An additional 65,000 rabbits were eliminated in the States of Mexico, San Luis Potosi, Guanajuato, Guadalajara, Tlaxcala, Morelos, Hidalgo, and Queretaro.

During the initial days of the eradication campaign, a hemagglutination test using human type O erythrocytes was used for VHD diagnosis. By the end of February, the CPA laboratory developed an immunofluorescence test and adapted other techniques to detect viral antigen and antibody with hemagglutination and hemagglutination-inhibition tests, and a rapid plate agglutination test. CPA laboratory tests also identified the most efficient disinfectants for VHD virus to be 1 percent formalin and 2 percent calcium carbonate solution. Preliminary studies indicated that wild rabbits, particularly the volcano rabbit, appear resistant to the VHD virus. Additional research is planned and in progress, including cooperative studies on VHD pathogenesis at the National University of Mexico College of Veterinary Medicine.

After affected premises are released from quarantine, the owners with official replacement certificates are to receive healthy rabbits from government rabbit breeding centers.

By mid-August, repopulation had taken place in the States of Michoacan and San Luis Potosi, and in Zapopan and Tlajomulco, Jalisco. A few new foci of VHD have been reported in Morelos, Jalisco (Guadalajara and Jocotepec) Guerrero (three foci), and Veracruz (two foci), for a total of 12 States and the DF affected by the VHD epizootic.

(Adapted from information received from Dr. Juan Lubroth and Dr. John Mason, CPA, USDA, APHIS, American Embassy, Mexico City, Mexico)

Secretary's Advisory Committee

The Secretary of Agriculture's Advisory Committee on Foreign Animal and Poultry Diseases met August 15, 1989, at the USDA's Plum Island Disease Center, Plum Island, New York, for a tour of the Center and discussion of its research plans, mission, and future needs of the facility. The meeting continued August 16- 17, 1989, at New Haven, Connecticut. Topics of discussion on August 16 included new diagnostics, changes in basic services, global perspective of foreign diseases, environmental concerns during emergency operations, and research initiatives involving new technology. The importation of llamas was discussed and comments were received from importers, industry representatives, and the public who attended the meeting. The importation of ostriches was discussed on August 17. Importers and industry representatives offered comments. The Committee and APHIS officials then met in executive session to prepare their report. Twenty-four resolutions and recommendations were drafted and forwarded to the Secretary's office concerning the Plum Island Animal Disease Center, standards for the importation of domestic animals: the safe importation of llamas, ostriches, red deer, and other animals and birds; user fees for import services, foreign travel, international trade, quarantine facilities, African horse sickness,

animal-borne disease, the equine industry, hog cholera, tick eradication, heartwater, and environmental concerns. Committee members are: Mr. Clint Booth, Dallas, TX; Dr. E. T. Bray, Tuskegee, Alabama; Dr. Everett Bryant, Storrs, CT; Mr. Ron Cameron, North Little Rock, AR; Mr. Dan Childs, Lake Placid, FL; Dr. Steve Conboy, Lexington, KY; Mr. Jack Dahl, Gackle, ND; Mr. Don Gingerich, Parnell, IA; Dr. Tommy Goodwin, Pittsburg, TX; Ms. Arlene H. Hamm, Rapid City, SD; Dr. Cathy Johnson, Edmonds, WA; Mr. Alfred Keating, Park Ridge, IL; Mr. John Lang, Madison, WI; Dr. Charles Livingston, San Angelo, TX; Dr. Victor Nettles, Athens, GA; Dr. James Nofziger, Canoga Park, CA; Mr. Charles Parker, Columbus, OH; Mr. Walter Stemler, Waterloo, IL; and Dr. Arthur Tennyson, Schaumburg, IL. (Dr. M. A. Mixson, Emergency Programs, VS, APHIS, USDA, Hyattsville, Maryland 20782, (301) 436-8073)

Data Bank

A Data Bank of more than 68,000 published articles on foreign animal diseases, and several domestic diseases of livestock and poultry, is maintained by Veterinary Services (VS) at Hyattsville, Maryland. While this information resource was originally established to provide VS with instant, round-the-clock access to data that may be needed during national animal disease emergencies, the Data Bank is also available to other Hyattsville, Maryland, staffs, VS field stations, laboratories, and others in and outside of the Federal establishment—especially concerning data on the prevention, diagnosis, and control of animal diseases and pests.

Most Data Bank documents are stored on microfilm and accessed by computer. Additional, mostly unpublished articles are filed separately. Copies of the microfilm are located at Hyattsville, Maryland; Mexico City, Mexico; Ottawa, Canada; and Brasilia, Brazil.

More details about the Data Bank and instructions for requesting Data Bank information may be obtained at Area Code (301) 436-8687; FAX (301) 436-8818; or by writing to; VS Data Bank, Emergency Programs, VS, APHIS, USDA, 6505 Belcrest Road, Hyattsville, Maryland 20782.

Subject Index

This subject index covers FAD Report volumes 10 through 17. It provides quick access to articles that contain information related to the index words. Subjects are cited by volume number (issue number), page number or span of pages, and year of publication. Readers who desire to maintain a complete file of the indexed articles can obtain copies of prior issues by sending a request to the editor. A subject index will be published each year in the winter issue.

Advisory committee	11(2):6-7	1983
	17(4):12	1989
Africa, foot-and-mouth disease	13(1):6	1985
African horse sickness:		
Africa	16(1):3	1988
Africa	16(3):4	1988
Africa & Spain	16(4):4	1988
Review	16(4):7-12	1988
Spain	15(4):4	1987
	16(1):2	1988
	16(4):4	
	17(1):2-6	1989
	17(2):3	1989
	17(4):6	1989
African swine fever:		
Africa	16(1):3	1988
	17(4):6	1989
Angola	16(4):4	1988
Belgium	13(2):11	1985
	13(3):6-8	1985
Belgium free of	15(1):4	1987
	15(3):2	1987
Cameroon	13(1):6	1985
Dominican Republic	10(1):2	1982
Haiti	10(2):3	1982
	10(3):2	1982
	11(1):3	1983
	11(2):2-3	1983
	11(3):2	1983
	11(4):2-3	1983
	12(4):1-2	1984
Italy	15(2):12	1987
	17(4):6	1989
Malawi	13(1):6	1985
Netherlands	14(2):2	1986
	14(3):4	1986
	15(1):4	1987
Netherlands free of	15(4):3	1987
Portugal	16(3):4	1988
	16(4):4	1988
	17(1):7	1989
	17(2):3	1989
	17(4):6	1989
Potential impact,		
Canada	11(4):7-8	1983

Review	14(2):7-11	1986
Sardinia, Italy	10(2):9	1982
	11(1):4	1983
	16(4):4	1988
South Africa	15(2):12	1987
Spain	16(3):4	1988
	16(4):4	1988
	17(2):3	1989
	17(4):6	1989
Zaire	17(1):7	1989
African wild buffalo	13(2):12	1985
Akabane review	17(3):9-13	1989
Alcelaphine herpesvirus-1	12(4):4	1984
Alcelaphine herpesvirus-2	12(4):4	1984
Alpacas imported from Chile	12(3):2	1984
Amblyomma hebraeum	12(3):2-3	1984
Amblyomma species	13(2):13	1985
Amblyomma variegatum	13(1):7	1985
Amblyomma variegatum in the Caribbean	15(1):14-15	1987
Animal and Plant Health Inspection Service:		
Test exercise	10(2):1-2	1982
Test exercise	11(2):6	1983
Foreign Service	10(3):5-6	1982
Animal disease eradicated from the		
United States	10(1):5-6	1982
Animal health information systems,OIE	16(2):5-6	1988
Animal products, port inspections	11(1):9-11	1983
Animal products, exotic disease agents in	13(4):1-2	1985
Antigua wildlife survey	17(4):4	1989
Aino virus	17(3):9, 10	1989
Approved disinfectants	14(3):7-9	1986
Arthrogryposis, sheep	15(2):2-3	1987
Asia, foot-and-mouth disease	13(1):6	1985
Asiatic hemorrhagic septicemia:		
Pennsylvania, Texas	13(3):13	1985
review	13(2):6-11	1985
Audiovisuals, foreign animal disease	13(3):9	1985
Avian imports studied	14(3):7	1986
Avian influenza:		
California	12(2):2	1984
economic assessment	13(1):1-3	1985
in Africa	17(2):4	1989
in Ireland	15(3):3	1987
in Maryland	13(2):3	1985
in Minnesota	17(1):1	1989
in Pennsylvania	14(1):1	1986
in Pennsylvania chickens	13(3):2	1985
in Pennsylvania, Virginia	12(3):1	1984
	12(4):1	1984

in New Jersey, Maryland	12(1):1-2	1984
in Virginia turkeys	12(2):1	1984
in Washington, DC	13(3):3	1985
Review	13(3):3	1985
Seminar in Mexico	12(2):5-11	1984
Surveillance completed	14(1):3	1986
Survey	13(2):2	1985
Survey	15(1):1	1987
Survey	16(1):2	1988
Survey	16(2):2-3	1988
Survey	17(1):1	1989
Update	13(1):1	1985
Update	13(3):2	1985
Update	14(3):1-4	1986
Avian influenza virus:		
A/chicken/Pennsylvania/83	13(3):3	1985
in chicken eggs	13(1):3	1985
highly pathogenic	13(3):5	1985
H5N2	13(1):1	1985
H5N2	15(1):1	1987
H5N2 research	13(3):2-5	1985
Avian influenza virus (continued)		
H7N3	13(1):1	1985
H10N8	13(1):1	1985
genetics	14(2):6-7	1986
in wildlife	12(2):2-4	1984
Avian salmonellosis	16(4):2-3	1988
Babesiosis, cattle, Puerto Rico	13(3):1	1985
Babesiosis, horses, Puerto Rico	11(4):5	1983
Babesiosis review	13(4):8-14	1985
Belgium, African swine fever	13(2):11	1985
Benign African theileriosis	13(2):13	1985
Bird imports	10(1):1	1982
Bluetongue:		
in the Caribbean	16(3):6-7	1988
in the Caribbean and		
Central America	17(3):6	1989
in Florida	11(4):3	1983
Malaysia	16(2):5	1988
Bluetongue virus type 2	11(3):3	1983
Bongo embryo exchange	15(4):7-8	1987
Bovine spongiform encephalopathy	16(4):4-7	1988
Bovine theileriosis review	13(2):12-17	1985
Bureau of Animal Industry centennial	12(1):3	1984
Bureau of Animal Industry centennial	12(2):13	1984
Bureau of Animal Industry centennial	12(3):7	1984
B.S.E.	16(4):4-7	1988
Cache Valley virus	15(2):2-3	1987
	17(3):12	1989
Caliciviral disease review	11(3):8-16	1983
Caliciviral disease update	14(3):5-6	1986

Cattle importation	12(1):4	1984
Cattle tick fever, Puerto Rico	13(3):1	1985
Central America and Panama		
veterinary services	11(3):3-7	1983
Central American animal diseases	11(3):6-7	1983
China, swine exported to	14(2):5-6	1986
Chinese swine imported	17(4):8-10	1989
Contagious bovine pleuropneumonia:		
Africa	17(2):3	1989
Burkina Faso	16(1):4	1988
Far East	15(1):3	1987
Kuwait	15(2):12	1987
Namibia	15(2):12	1987
Portugal, Kuwait, & Africa	15(3):3	1987
Review	17(1):7	1989
12(1):6-8	1984	
Contagious equine metritis	10(1):3	1982
Contagious equine metritis	10(2):4-5	1982
Contagious equine metritis	11(1):4	1983
Netherlands	15(3):3	1987
Netherlands	15(4):4	1987
Switzerland	16(4):4	1988
Corridor disease	13(2):13-14	1985
Cosmopolitan theileriosis	13(2):13	1985
Dermatophilosis and heartwater, Caribbean	13(1):6-9	1985
Detector dog program	14(2):1-2	1986
Diptera, exotic	11(1):4-5	1983
Diptera, exotic	11(4):3-4	1983
Diseases eradicated from the United States	10(1):5-6	1982
Diseases present, Central America	11(3):6-7	1983
Disinfectants, approved by USDA	14(3):7-9	1986
Douglas virus	17(3):9	1989
Duck plague review	15(3):4-11	1987
East Coast fever	13(2):13	1985
Economic assessment of avian influenza	13(1):1-3	1985
Editorial committee membership	12(1):8	1984
	12(4):15	1984
	14(3):10	1986
	17(2):14	1989
Embryo importation	11(2):4-5	1983
Emergency disease information	10(1):3	1982
Emergency disease investigations:		
	13(1):5	1985
	14(1):1	1986
	14(4):1	1986
	15(1):1-2	1987
	15(2):1	1987
	15(3):1	1987
	15(4):1-2	1987
	16(1):1	1988
	16(2):1	1988
	16(3):1	1988

	16(4):1	1988
Ephemeral fever	17(1):1	1989
Epizootic hemorrhagic disease, Canada	17(2):1	1989
Equine piroplasmosis, Puerto Rico	17(3):1	1989
Eradicated diseases, United States	17(4):1	1989
Exotic diptera	15(1):3	1987
Exotic diptera	16(3):5	1988
Exotic disease agents in animal products	11(4):5	1983
Exotic Newcastle disease (see <i>Velogenic viscerotropic Newcastle disease: VVND</i>)	10(1):5-6	1982
Exotic ticks in Texas	11(1):4-5	1983
Far East animal health notes	11(4):3-4	1983
Fiji free of VVND, HC, and SVD	13(4):1-2	1985
Food and Agriculture Organization	13(1):2-3	1984
Food Safety and Inspection Service	15(1):2-4	1987
Foot-and-mouth disease: geographic distribution:	15(3):3	1987
	11(3):7-8	1983
	13(2):5	1985
	13(3):8	1985
	15(1):4	1987
	15(2):12	1987
	15(3):2	1987
	16(1):3	1988
	16(2):3-5	1988
	16(3):3-4	1988
	16(4):3	1988
	17(2):2	1989
in Africa	13(1):6	1985
	17(1):7	1989
in Asia	13(1):6	1985
	15(2):5-11	1987
	17(1):7	1989
in Chile	12(2):12	1984
in Chile	15(1):4	1987
in Chile	15(2):11	1987
in Colombia	11(1):5-9	1983
	16(2):7-12	1988
in Colombia	10(1):1	1982
in Denmark	10(2):2	1982
in Denmark	11(2):2	1983
in Elephants	12(4):6-7	1984
in Europe	17(2):2	1989
in Far East	15(1):2-4	1987
in German Federal Republic	16(2):4	1988
in Israel	15(2):12	1987
in Italy	13(1):6	1985
	13(2):11	1985
	13(3):7-8	1985
	15(1):4	1987
	15(2):11-12	1987

in Italy	15(4):3 17(1):7	1987 1989
in the Netherlands	12(1):3-4	1987
in South America	13(1):6	1985
	17(1):6	1989
	17(2):2	1989
in Mexico	13(1):10	1985
Foot-and-mouth disease vaccine bank	10(2):7-8	1982
Foot-and-mouth disease subunit vaccine	10(3):3	1982
Foot-and-mouth disease surveillance:		
Mexico	13(1):10	1985
Mexico	16(1):5-8	1988
Foot-and-mouth disease virus:		
effects of drying	13(2):5-6	1985
in animal products	13(4):1-2	1985
type Asia1	13(3):8	1985
survival, drying	13(2):5-6	1985
Foreign Animal Disease Advisory Committee:	10(3):6-7 16(3):2-3	1982 1988
Foreign animal disease awareness	16(2):1-2	1988
Foreign Animal Disease Report:		
Editorial Committee	12(1):8	1984
Editorial Committee	12(4):15	1984
Editorial Committee	14(3):10	1986
purpose	10(1):1	1982
Foreign animal disease research	14(4):11-12	1986
Foreign animal disease teachers seminar	10(3):7	1982
Foreign animal disease training:		
	14(1):3	1986
	15(4):2	1987
	16(3):2	1988
Foreign animal disease update:		
(also see world animal disease update and world animal disease roundup)	14(4):7 15(1):4 15(2):11-12 15(3):2-3 15(4):3-5 16(1):3-4 16(2):3-5 16(3):3-6 16(4):3-5 17(1):6-8 17(2):2-4 17(3):2-3 17(4):4-7	1986 1987 1987 1987 1987 1988 1988 1988 1988 1989 1989 1989 1989 1989
Foreign Service employment	10(2):8	1982
Foreign Service employment	10(3):5-6	1982
Fowl plague (see avian influenza)		
Gammaherpesvirinae	12(4):4	1984

Genetically engineered FMD vaccine Glanders, Turkey (see errata in 12(2):12)	10(3):3	1982
Guarding America's agriculture <i>Haemaphysalis</i>	11(4):5	1983
Harry S. Truman Animal Import Center Florida	11(1):9-11	1983
	13(2):13	1985
Haiti:	10(3):4	1982
African swine fever emergency	11(1):3	1983
African swine fever program	10(1):2	1982
African swine fever program	10(2):3	1982
African swine fever program	10(3):2	1982
African swine fever program	11(1):2-3	1983
African swine fever program	11(2):2-3	1983
African swine fever program	11(3):2-3	1983
African swine fever program	11(4):2-3	1983
African swine fever program	12(4):1-2	1984
Emergency declared	11(1):3	1983
No wild swine	10(1):2	1982
Heartwater:		
and dermatophilosis, Caribbean	13(1):6-9	1985
investigation	10(2):4	1982
review	10(1):6-10	1982
	17(2):4-7	1989
update	16(1):11-13	1988
Hemorrhagic septicemia, Asiatic:		
review	13(2):6-11	1985
in bison	13(3):13	1985
in the Far East	15(1):3	1987
Hides and trophies, imported	14(2):3-4	1986
<i>Hippobosca longipennis</i>	11(4):3-4	1983
Hog Cholera:		
diagnosis	15(3):3-4	1987
geographic distribution:		
	11(1):4	1983
see errata in	11(3):16	1983
	16(2):5	1988
	16(3):4	1988
in Africa	17(2):4	1989
in Austria	11(3):16	1983
in Belgium	15(3):2	1987
in England	15(4):3	1987

in Europe	15(4):3-4	1987
in FR Germany	15(3):3	1987
in France	17(2):4	1989
in Italy	15(3):2	1987
in Japan	15(1):4	1987
in Mexico	17(1):7	1989
in South America	17(2):3	1989
	17(2):3	1989
in the Far East	15(1):3-4	1987
	17(2):4	1989
in the Netherlands	15(3):3	1987
in the Philippines	17(2):4	1989
in Yugoslavia	15(3):3	1987
investigation, New Hampshire	15(1):1-2	1987
review	12(4):7-15	1984
surveillance	16(1):5	1988
suspected in Texas	16(1):1	1988
How Foreign Animal Disease Report is produced	12(1):8	1984
Hyalomma species	13(2):13	1985
Hydranencephaly, sheep	15(2):2-3	1987
Importation of animals	12(3):2	1984
Imported cattle, Europe	12(1):4	1984
Imported pork	13(2):5	1985
Italy, foot-and-mouth disease	13(1):6	1985
Italy, foot-and-mouth disease	13(2):11	1985
Ivermectin	12(1):5	1984
Japanese encephalitis:		
Asia	15(1):3	1987
India	16(3):4-5	1988
Jembrana disease:		
review	13(3):10-13	1985
in Bali, Indonesia	15(1):3	1987
Laboratories, international reference	14(2):4	1986
Llamas imported from Chile	12(3):2	1984
Llama imports	15(2):4	1987
Los Angeles animal import center	12(3):2	1984
Lumpy skin disease:		
	16(2):5	1988
	16(3):4	1988
	16(4):4	1988
Maedi review	14(1):4-10	1986
Malawi African swine fever	13(1):6	1985
Mali and Togo rinderpest	13(2):11-12	1985
Mali project	12(3):5	1984
Malignant catarrhal fever review	12(4):3-6	1984
Manila Office, Animal and Plant Health Inspection Service	12(4):3	1984
Maryland avian influenza	13(1):1	1985
Maryland avian influenza	13(2):3	1985

Mediterranean and tropical		
theileriosis	13(2):13	1985
Meliodosis	17(2):10-13	1989
Mexican border security	14(2):5	1986
Mexico foot-and-mouth disease survey	13(1):10	1985
Mexico foot-and-mouth disease survey	14(1):2	1986
Mexico screwworm program	12(4):2	1984
Mexico vesicular stomatitis	12(1):5	1984
Mexico vesicular stomatitis	12(3):4	1984
Model regulation on zoological		
animals	14(4):6	1986
Musca vitripennis	10(2):2	1982
 Musca vitripennis	11(1):5	1983
Musca vitripennis	11(4):3	1983
NADDs: National Animal Disease		
Detection System	13(2):3	1985
Necrotic hepatitis of rabbits	17(2):7-10	1989
Nematodiasis	13(4):4-6	1985
Newcastle disease:		
(also see velogenic viscerotropic Newcastle disease)		
geographic distribution 17(1):7-8	1989	
in pet birds	13(1):5	1985
in pet birds	16(3):1-2	1988
in pigeons	13(1):5-6	1985
in the Far East	15(1):3	1987
New animal import center in		
Los Angeles	12(3):2	1984
No wild swine in Haiti	10(1):2	1982
O.I.E.:		
Office International des		
Epizooties	10(2):6-7	1988
Animal health		
information systems	16(2):5-6	1988
One hundred years of animal health	12(2):13-14	1984
Oriental theileriosis	13(2):13	1985
Ostriches with exotic ticks	17(3):5-6	1989
	17(4):2-3	1989
Ossabaw Island, vesicular stomatitis	11(4):1-2	1983
Panama and Central America	11(3):3-7	1983
Parafilariasis in cattle, review	11(1):11-15	1983
Parafilariasis, seasonal testing		
(see errata in 11-2, page 12)	11(1):15	1983
Parafilariasis, therapy for	12(1):5	1984
Parafilaria vector	10(2):2	1982
Parent Committee: Import pathogens and vectors	13(1):9-10	1985
Peaton virus	17(3):9, 10	1989
Penguin eggs imported	12(1):4-5	1984
Pennsylvania, avian influenza	13(1):1	1985
Peste des petits ruminants	16(4):3	1988
	17(1):7	1989
	17(2):3	1989
Pet birds, Newcastle disease	13(1):5	1985

Piroplasmosis (see Babesiosis) Philippine scientific and technical exchange	11(2):5-6	1983
Plant Protection and Quarantine	11(1):9-11	1983
Plant Protection and Quarantine	13(4):6	1985
Plum Island Research	14(4):11-12	1986
Pork imported	13(2):5	1985
Port inspections of animal products	11(1):9-11	1983
Port inspections of animal products	13(4):6	1985
Puerto Rico tick program	11(4):5-7	1983
Puerto Rico tick program	12(2):11-12	1984
Puerto Rico tick program	13(3):1	1985
Puerto Rico tick program	13(4):1	1985
Puerto Rico tick program	14(1):2	1986
Rabbit disease in Mexico	17(1):8-9	1989
	17(2):7-10	1989
	17(3):3	1989
	17(4):10-12	1989
Rama Dewa disease: Jembrana	13(3):10	1985
READY system revised	14(4):3	1986
READY system update	15(3):1-2	1987
READY test exercise	15(4):2	1987
READY test exercise	16(3):2	1988
Reference laboratories, international	14(2):4	1986
Research at Plum Island	14(4):11-12	1986
Research at Plum Island	15(1):12-14	1987
Research at Plum Island	15(2):12-15	1987
Rhinoceros, ticks in Texas	12(3):2-3	1984
	17(4):3	1989
XRift Valley fever:		
Africa	16(4):4	1988
Niger	17(2):3	1989
review	10(2):9-14	1982
update	16(2):3-4	1988
update	16(3):7-11	1988
Rhipicephalus species	13(2):13	1985
Rhipicephaline theileriosis	13(2):13	1985
Rinderpest:		
control in Africa	12(3):5-7	1984
geographic distribution	13(3):9	1985
geographic distribution	15(1):4	1987
in Africa:		
	13(1):6	1985
	15(1):4	1987
	16(1):3	1988
	16(2):5	1988
	17(1):7	1989
in Far East	15(1):3	1987
	17(2):3	1989
in Sri Lanka:		
	16(1):3	1988
	16(3):4	1988
	16(4):3	1988

Togo and Mali review	13(2):11-12 11(4):8-12 16(3):11-20 17(3):6-8	1985 1983 1988 1989
Rome office operations, Animal and Plant Health Inspection Service	12(4):3	1984
Salmonellosis, avian	16(4):2-3	1988
Salmonella enteritidis phage type 4	16(4):2-3	1988
Sardinia, African swine fever	13(1):6	1985
Screwworms:		
eradication in Mexico	12(4):2	1984
in Florida dog	15(4):1	1987
in Puerto Rico	17(4):1-2	1989
in Texas dog	15(3):1	1987
program update	14(4):10	1986
program review	11(2):7-11	1983
update	13(2):1-2	1985
Sheep arthrogryposis and hydranencephaly	15(2):2-3	1987
Sheep associated malignant catarrhal fever	12(4):4	1984
Sheep pox and goat pox:		
geographic distribution	13(3):9	1985
in Greece	16(3):4 16(4):4 17(1):7 17(2):3 16(2):5	1988 1988 1989 1989 1988
Smuggled birds	17(1):2	1989
SNOVET: Systematized Nomenclature of Veterinary Medicine	12(4):7	1984
Soft ticks on Hispanola Island	10(1):2	1982
South America foot-and-mouth disease	13(1):6	1985
Spanish language Foreign Animal Disease Report	12(4):7	1984
Spider lamb syndrome	15(1):7-12	1987
Survival of disease agents in animal products	13(4):2-3	1985
Suspected foreign animal diseases	10(2):4	1982
Suspected foreign animal diseases	11(1):4	1983
suspected foreign animal diseases	11(2):4	1983
Suspected foreign animal diseases	11(3):3	1983
Swine parvoviral disease	15(1):5	1987
Swine vesicular disease:		
in Hong Kong	15(4):9 16(2):5	1987 1988
in Italy	17(2):3	1989
review	15(4):8-12	1987
Swollen head syndrome	15(4):6-7	1987
Tabanan disease: Jembrana	13(3):10	1985
Teschen disease	16(4):4 17(1):7 17(2):4	1988 1989 1989

Test exercise, Animal and Plant Health Inspection Service	10(2):1 11(2):6	1982 1983
Texas, exotic ticks	12(3):2-3	1984
Theileriosis, bovine, review	13(2):12-17	1985
Tick-borne protozoa	13(2):12	1985
Tick program in Puerto Rico:	11(4):5-7 12(2):11-12 13(3):1 13(4):1 14(1):2	1983 1984 1985 1985 1986
Tick program feasibility for Caribbean	15(1):14-15	1987
Tick survey on Antigua	17(4):7-8	1989
Ticks on imported ostriches	17(3):5-6	1989
Ticks on imported rhinoceroses	12(3):2-3 17(4):3 16(1):4-5	1984 1989 1988
Tinaroo virus	17(3):9, 10	1989
Togo and Mali, rinderpest in	13(2):11-12	1985
Trophies and hides, imported	14(2):3-4	1986
Tropical bont ticks	15(1):14-15	1987
Tropical bont ticks	13(1):7	1985
Tropical theileriosis	13(2):13	1985
Truman, Harry S., Animal Import Center	10(3):4	1982
Trypanosomiasis, W. Hemisphere	16(1):13-16	1988
Turkey rhinotracheitis	15(4):5-7	1987
Velogenic Viscerotropic Newcastle disease: in exotic birds geographic distribution	10(3):4-5 10(2):4 11(2):1 11(3):1-2 11(4):2 12(3):1-2 13(3):1 15(2):1 16(3):1-2 16(4):1	1982 1982 1983 1983 1983 1984 1985 1987 1988 1988
in United States:		
Venezuelan equine encephalomyelitis review	14(4):13-18	1986
Vesicular stomatitis conference	13(1):3-4	1985
(see errata in 11-2, page 12)	11(1):1	1983
Vesicular stomatitis: field studies	14(4):3	1986
fingerprinting virus	16(1):8-10	1988
geographic distribution: in Central and South America	16(2):5	1988
in Colombia	16(3):3	1988
in Mexico	12(1):5	1984

in Mexico	12(3):4	1984
in Mexico	16(2):5	1988
in United States	10(3):1-2	1982
	11(1):1	1983
	11(2):1-2	1983
	11(3):1	1983
	12(2):11	1984
	13(1):3	1985
	13(3):2	1985
	13(4):1	1985
historical review on Ossabaw Island, Georgia:	10(3):11-14	1982
	11(4):1	1983
	15(3):1	1987
	16(4):1-2	1988
	17(4):4	1989
review vaccine	10(3):8-11	1982
	11(4):2	1983
Veterinary Services, Central America and Panama	11(3):3-7	1983
Viral hemorrhagic disease of rabbits	17(1):8-9	1989
	17(2):7-10	1989
	17(3):3	1989
	17(4):10-12	1989
Viral turkey rhinotracheitis	15(4):5-7	1987
Visna-Maedi review	14(1):4-10	1986
VVND: see velogenic viscerotropic Newcastle disease		
Wesselsbron virus disease review	17(1):9-15	1989
Wildebeest-associated malignant catarrhal fever	12(4):4	1984
Wildlife avian influenza	12(2):2-4	1984
Wildlife disease studies	10(2):5-6	1982
Wildlife and tick survey on Antigua	17(4):7-8	1989
World animal disease roundup: (also see foreign animal disease update)	10(1):3-5	1982
	10(2):8-9	1982
	10(3):7	1982
	11(1):3	1983
	11(2):3-4	1983
	11(3):1-2	1983
	11(4):4-5	1983
	12(1):3-4	1984
	12(2):12	1984
	12(3):4	1984
	12(4):2-3	1984
	13(1):6	1985
	13(2):11-12	1985
	13(3):8-9	1985
	13(4):7-8	1985
	14(1):4	1986

	14(2):2-3	1986
	14(3):4-5	1986
	15(1):4	1987
Zimbabwean malignant catarrhal fever	13(2):13	1985
Zoological animal regulation	14(4):6	1986

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